

REMARKS

Claim Status

Claims 1-24 were originally presented for examination in this application. In a preliminary amendment filed on May 14, 2004, Applicants added new claims 25-31. A restriction requirement issued on April 25, 2007, and Applicants elected claims 1-21 and 25-31 in response thereto. An office action issued on August 24, 2007, in which all pending claims were rejected, and an amendment and response was filed in which certain claim amendments were presented to overcome the rejects. A final office action issued on April 14, 2008, upholding the rejections, and a subsequent response was filed on May 29, 2008.

The current office action issued on July 11, 2008, in which:

- Claims 1, 2, 8, 9, 12, 13, 15, 16, 19, 25, 26 and 29 were rejected under 35 U.S.C. §103(a) as being obvious in light of U.S. Patent No. 6,359,647 to Sengupta et al. (“Sengupta”) further in view of U.S. Patent No. 6,570,608 to Tserng (“Tserng”) and U.S. Patent No. 6,972,787 to Allen et al. (“Allen”).
- Claims 3 – 7 were rejected under 35 U.S.C. §103(a) as being obvious in light of Sengupta, Tserng and Allen and further in view of U.S. Patent No. 5,845,009 to Marks et al. (“Marks”).
- Claims 10, 11, 17, 18, 20, 27, 28 and 30 were rejected under 35 U.S.C. §103(a) as being obvious in light of Sengupta, Tserng and Allen and further in view of U.S. Patent No. 6,371,805 to Brodsky et al. (“Brodsky”).
- Claims 14, 21 and 31 were rejected under 35 U.S.C. §103(a) as being obvious in light of Sengupta, Tserng and Allen and further in view of U.S. Patent No. 6,441,846 to Carlbom et al. (“Carlbom”).

Examiner Interview

Applicants would like to thank Examiner Czekaj for his time and helpful suggestions regarding the pending claims during the telephonic interview of October 22, 2008. The following is intended to constitute a proper recordation of the interviews in accordance with M.P.E.P. §713.04.

Claim Rejections Under 35 U.S.C. §103(a)

Independent claims 1, 15, 17, 18, 19, 20 and each recite using video frames generated “over time” to track objects as they traverse a monitored environment in a manner that is “independent of calibration among the image sensors and the monitored environment.” In contrast, each of the cited references is expressly dependent upon calibration to effectuate camera handoffs and object tracking.

The Examiner concedes that Serengupta lacks the ability to track multiple objects independent of the sensors and the monitored environment, and looks to Allen to provide this feature. Allen, however, provides no such capabilities.

Allen describes two different embodiments of a video conferencing system that tracks objects. One method, which precisely the type of system the present invention improves upon, uses a “camera preference map” that includes “preferred operating regions for each of the cameras to determine which camera to operate.”¹ A command module compares a triangulated position of the object with the camera preference map to determine which preferred operating position the object lies in.² Requiring positional triangulation and a camera preference map directly contradicts the claimed techniques and system that operate “independent of calibration.” Specifically, Allen’s positional triangulation is only meaningful if the detected position is related to — i.e., calibrated against — the camera preference map.

The second embodiment described by Allen is also irrelevant. To track multiple objects, “an illuminator that projects a form of invisible light, such as infrared light, is attached to an object to be tracked.”³ When tracking people, for example, each person is assigned an “invisible light illuminator” that is tracked by the cameras.⁴ In order to use such devices, the system

¹ Allen, column 30, lines 17-23.

² Allen, column 4, lines 5-9.

³ Allen, column 2, lines 61-63.

⁴ Allen, column 2 ,lines 61-63.

requires a database that stores “a plurality of identity characteristics that correspond to properties of the targets projected by the illuminators.”⁵ This database may also include “identity characteristics,” “environment preferences” and “preferences related to operation of the cameras.”⁶ In each case, the Allen system is merely looking for known devices and querying a database to determine what each device represents. In no way is the Allen system analyzing the monitored environment over time, as claimed.

In particular, the claims recite techniques and systems that are able to track objects as they pass through a monitored environment based on the location and movement of the object itself, without the need for calibration of the cameras. Instead of relying on mappings and coordinates, the claims call for analyzing video frames over time to determine proper camera hand-offs and transitions, thus eliminating the need for floor plans, tracking devices, layouts or camera positioning calculations both at the time of implementation and when floorplans or camera positions change – a costly and time consuming drawback to the Serengupta system.

Thus, because neither Serengupta nor Allen teaches or suggests every element of independent claims 1, 15, 17, 18, 19, 20 and 21, Applicants respectfully submit that these references, alone or in combination, fail to anticipate these claims or render the claims as obvious. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1, 15, 17, 18, 19, 20 and 21 under 35 U.S.C. §103(a), as well as those claims that depend directly or indirectly therefrom.

⁵ Allen, column 22, lines 4-6.

⁶ Allen, column 23 line 21, and column 24 lines

Applicants: Buehler et al.
Attorney Docket No. ITV-001
U.S.S.N.: 10/706,850
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Page 12

CONCLUSION

Applicants respectfully requests allowance of claims 1-21 and 25-31 in due course. The Examiner is invited to contact Applicants' undersigned representative by telephone at the number listed below to discuss any outstanding issues.

Respectfully submitted,

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